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SITE SUMMARY AND RECOMMENDATION

CONEY ISLAND CREEK

BROOKLYN, NY

The Coney Island Creek site ("the CIC site") (EPA ID No. NYN000203538) is considered an area of sediment contamination with multiple possible sources of upland contamination, located in the Coney Island and Gravesend areas of Brooklyn, NY. EPA discovery of the CIC site occurred through petition for a PA in March 2020. The petition cited potential contaminants in the waterway from historical industrial land use, impacts of storm surges, the suspension of a U.S. Army Corps of Engineers (USACE) harbor-wide coastal storm risk management feasibility study, and proposed dredging for ferry services. The creek extends approximately 1.8 miles from a culvert at Shell Road on the eastern end to Gravesend Bay on the western end. The width of the creek varies from 60 to 250 feet, although it opens to 700 feet at the western end at Gravesend Bay. The depth of the creek at mean low water varies from 1 foot in the narrow eastern end to 15 feet in the wider central portion. The entirety of the creek is located within the NY-NJ Harbor Estuary.

Coney Island Creek is a tidal inlet that separates the western end of Coney Island peninsula from the Brooklyn mainland. Over time, development of the surrounding land has caused the creek to undergo alterations from its natural state. The creek was once a small waterway that ran from Gravesend Bay to what is now Cropsey Avenue. The creek was later extended eastward, completely separating Coney Island from Brooklyn's mainland, from Gravesend Bay in the west to Sheepshead Bay in the east. In the 1920s and 1930s, development projects and the creation of highways filled in the eastern half of the creek with unspecified landfill material. In 1962, additional portions of the inlet from Sheepshead Bay were filled with soil that had been excavated during construction of the Verrazano-Narrows Bridge, returning Coney Island to a peninsula.

Coney Island Creek's banks are lined with various debris from shipwrecks, old barges, piling, construction material, and abandoned cars and boats. Based on review of available site photographs and Sanborn maps, industrial activities have taken place in the area surrounding the creek since the early 1900s, including manufactured gas plants, coal yards, shipyards, an asphalt plant, an oil company, brick and cement yards, lumber yards, a sewage disposal plant, manufacturing facilities for furnishings (steel cabinets, wood products, and fluorescent light fixtures) and food products (baked goods, ice cream, and ice), vehicle repair and storage facilities, electroplating facilities, scrap yards, and auto salvage yards. The rise in urbanization and impermeable surfaces has increased stormwater runoff to the creek and significantly reduced or eliminated tidal marshes or other buffer zones capable of absorbing the extra load. According to the NYCDEP, Coney Island Creek receives approximately 290 million gallons of discharge per year through permitted combined sewer overflow (CSO) outfalls and 1,487 million gallons of stormwater runoff per year.

NYSDEC has previously addressed contamination in the eastern portion of Coney Island Creek, which was associated with investigation and remediation at the Former Brooklyn Borough Gas Works Manufactured Gas Plant (MGP) site located adjacent to the creek. Surface water and sediment samples were collected from the eastern portion of Coney Island Creek as part of the NYSDEC RI at the former MGP site. The analytical results indicated that creek sediments were

contaminated with PAHs and BTEX compounds that were attributable to the former MGP; inorganic constituents, such as arsenic and lead, were detected in sediment collected near the CSO and stormwater outfalls. NAPL in the form of a dense oily liquid was observed to be seeping into the creek from the former MGP site's surface near the former gas holders and the oil was observed to be saturating creek sediment. The NAPL was a significant source of PAHs and BTEX compounds to creek sediments.

After remediation of the upland portions of the former MGP site, NYSDEC implemented remedial measures in the eastern portion of Coney Island Creek beginning in March. The creek segment targeted for remediation was delineated based on the extent of NAPL and coal tar observed in creek sediments, and on the rationale that PAHs beyond the MTA bridge could be attributed to other sources along the creek. The remediation included excavation of coal-tar-contaminated materials from the entire width of the creek, extending from the culverts at Shell Road (i.e., the eastern end of the creek) to the MTA bridge 0.4 mile downstream; the removal of the top 3 feet of contaminated sediment; and replacement of the excavated materials with clean gravel, sand, and organic material on top of a geotextile fabric that acts as a demarcation layer. As part of the NYSDEC remediation, a total of 97,541 tons of contaminated sediment were removed from the creek for off-site disposal. As MGP contaminants were detected at the maximum sampling depth of 10 feet below the sediment surface, contaminated sediment is known to remain in place below the 3-foot cap.

Previous environmental sampling of Coney Island Creek sediments was also conducted in association with the Newtown Creek Superfund Site (EPA ID No. NYN000206282) RI/FS, in October 2012. Sediment samples were collected from eight locations within Coney Island Creek from 0 to 15 centimeters (5.9 inches) bss. The sample results showed the presence of PAHs and metals in the creek's sediments at all sample locations; VOCs and pesticides were also detected.

On September 3, 2020, WESTON® Region 2 SAT performed a reconnaissance of Coney Island Creek. The western portion of the creek is surrounded by multiple parks and residential areas. The reconnaissance confirmed that fishing for human consumption occurs in the western portion of the creek at the Kaiser Park fishing pier; fishing is also known to occur in other parts of the creek. On March 9, 2021, Region 2 SAT performed reconnaissance activities of the waterway to examine potential sample locations and access points. Land use surrounding the creek in the eastern portion is mostly commercial and industrial. Trash and debris were present throughout the creek and on its banks. Four outfalls were observed flowing in this area with fish and ducks seen in the water.

Despite the known impaired nature of Coney Island Creek, it is utilized for various recreational activities, including boating and birding. Four city parks are located adjacent to the western portion of the creek near the mouth of Gravesend Bay, with approximately 2 miles of shoreline. Although not an official sanctioned use of the creek, primary contact in the form of swimming and baptisms have been reported along the southwestern shoreline of the creek near Gravesend Bay. The

presence of chemical and biological contamination in the creek is well-known, yet the creek remains fished for human consumption including mullet, porgy, striped bass, fluke, and bluefish. There is one permanent residence situated directly on the creek shoreline, as well as multiple encampments populated by homeless people. Coney Island Creek is situated within the core area of the NY-NJ Harbor Estuary. Sensitive environments subject to potential contamination along the 15-mile surface water pathway include habitat known to be used by Federally-designated (7) and State-designated (13) endangered or threatened species, approximately 40 miles of HRS-eligible wetland frontage, and the Gateway National Recreation Area.

In April 2021, WESTON Region 2 SAT personnel collected surface water and sediment samples as part of the SI evaluation of the CIC site. WESTON collected a total of 50 sediment samples (including three environmental duplicates) from 21 locations, and 8 surface water samples (including one environmental duplicate) from 7 locations, in Coney Island Creek. NAPL was not encountered at any of the sample locations. WESTON collected samples for background comparison from Shell Bank Creek. The location is considered to represent background conditions in the general area of the site because it is believed to be unaffected by site-specific activities. WESTON collected four surface water and 13 sediment samples (including one environmental duplicate) from Shell Bank Creek.

SI analytical results document the presence of a contaminated sediment source at the site, thus an observed release in the Surface Water Migration Pathway and actual contamination of the Coney Island Creek fishery and a portion of the NY-NJ Harbor Estuary. The contaminated sediment source is characterized primarily by the presence of PAHs (maximum concentrations), including phenanthrene (2,600 µg/kg), anthracene (700 µg/kg), fluoranthene (4,500 µg/kg), pyrene (3,700 µg/kg), benzo(a)anthracene (2,100 µg/kg), chrysene (2,100 µg/kg), benzo(b)fluoranthene (2,900 µg/kg), benzo(k)fluoranthene (820 µg/kg), benzo(a)pyrene (2,300 µg/kg), indeno(1,2,3-cd)pyrene (1,200 µg/kg), and benzo(g,h,i)perylene (1,300 µg/kg); and inorganic substances, including barium (610 J mg/kg), cadmium (15 J mg/kg), lead (1,600 J mg/kg), silver (11 J mg/kg), zinc (1,900 J mg/kg), and cyanide (5.5 J mg/kg). Other contaminants detected at levels greater than or equal to three times the maximum background concentration, or greater than the highest RDL when all background results were non-detect, include the VOC 1,2,4-trimethylbenzene (190 µg/kg); the SVOC bis(2-ethylhexyl)phthalate (2,500 µg/kg); and the pesticides 4,4′-DDE (23 J µg/kg), 4,4′-DDD (46 µg/kg), 4,4′-DDT (290 µg/kg), cis-chlordane (9.6 µg/kg), and trans-chlordane (14 µg/kg).

The October 2012 sediment sample analytical results associated with the Newtown Creek Superfund site reference sampling discussed above showed PAH concentrations an order of magnitude higher than what was detected in sediment samples collected by SAT V in April 2021. The following PAHs and their maximum concentrations from both years is a comparison of the results.

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PAH Concentrations		
PAH	2012	2021
Benzo(a)pyrene	19,400 µg/kg	2,300 µg/kg
Benzo(a)anthracene	23,000 µg/kg	2,100 µg/kg
Benzo(b)fluoranthene	18,400 µg/kg	2,900 µg/kg
Fluoranthene	57,800 µg/kg	4,500 µg/kg
Phenanthrene	47,300 µg/kg	2,600 µg/kg

Ex. 5 Deliberative Process (DP)

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